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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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Siemens Corporation
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| EXAMINER | |
|---|---|
| MULLINS, BURTON S | |
| ART UNIT | PAPER NUMBER |
| 2834 | |

DATE MAILED: 10/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/731,501 | RICO ET AL. | |
| | Examiner | Art Unit | |
| | Burton S. Mullins | 2834 | |

*-- The MAILING DATE of this communication appears on the cover sh et with the correspondenc address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-9, 11-12, 14, 16-18 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Debleser (U. S. Pat. 6,265,805 B1). Referring to claim 1, Debleser discloses a method for tuning the torsional natural frequency of a rotor (refer to the symmetry shown in Fig.3 comprising the step of: forming within winding slots 15 defined by radially projecting winding teeth 26 at least one tuning slot comprising cooling channel 27 (Fig.2) that extends radially inwardly from the bottom of the winding slot a distance (Figs.2-3). While the cooling channel is not described as a "tuning slot...to tune the rotor to a desired torsional natural frequency," the cooling channel inherently performs this function since it has the identical structure. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claims 3, 7, 11, 16 and 20, note that the at least one tuning slot 27 is positioned at a location that minimizes impact to the electromagnetic characteristics of the rotor cross-section (by providing a symmetric location to the slots 27, as seen in Fig.3).

Regarding claims 4, 8, and 12, note plural tuning slots 27.

Regarding claim 5, Debleser discloses a method for tuning the torsional natural frequency of a rotor having opposing poles and a quadrature axis, comprising the step of forming within the winding slots 15 defined by radially projecting winding teeth 26 that are positioned substantially at the quadrature axis, at least one tuning slot comprising cooling slot 27 that extends radially inwardly from the bottom of the winding slot 15 a distance (Figs.2-3). Since the structure of Debleser is identical to applicant's structure, the cooling slots inherently perform the function of tuning the rotor to a desired torsional natural frequency and thus anticipate claim.

Regarding claim 6, the at least one tuning slot 27 has a width smaller than the width of any winding wire 11 received within the winding slot 15 to prevent winding wire from passing into the tuning slot 27 (Fig.2).

Regarding claim 9, note rotor shaft 1, a cylindrically configured rotor body (Fig.3) formed as pad of the shaft 1 and having a plurality of radially projecting winding teeth 26 that define winding slots 15 for receiving winding wire 11 therein, the winding slots 15 having a bottom portion spaced radially inward, and at least one first winding slot 15 having a tuning slot or cooling slot 27 that extends radially inward from the bottom thereof a distance that tunes the rotor to a desired torsional natural frequency, and at least one second winding slot 39 being devoid of a tuning slot.

Regarding claim 14, note a rotor shaft 1; a cylindrically configured rotor body formed as part of the shaft 1 and having a plurality of radially projecting winding teeth 26 defining winding slots 15 for receiving winding 11 wire therein, the rotor body having two or more poles and a quadrature axis, the winding slots 15 having a bottom spaced radially inward, and

at least one tuning slot 27 positioned at the quadrature axis and extending radially inward from the bottom of the winding slot 15 a distance that tunes the rotor to a desired torsional natural frequency.

Regarding claim 17, note plural tuning slots 16 positioned substantially at the quadrature axis.

Regarding claim 18, note rotor shaft 1, a cylindrically configured rotor body formed as part of the shaft 1, said rotor body having a plurality of radially projecting winding teeth 26 defining winding slots 15 for receiving winding wire 11 therein, said rotor body having two poles 18 and a quadrature axis, said winding slots 15 having a bottom spaced radially inward, and at least one tuning slot 27 extending radially inward from the bottom of the coil slot 15 a distance that tunes the rotor to a desired torsional natural frequency, wherein said winding slots (39) positioned at said poles are devoid of any tuning slot.

3. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi (U. S. Pat. 4,827,172). Kobayashi discloses a method for tuning the torsional natural frequency of a rotor comprising the step of: forming within winding slots 34,36 defined by radially projecting winding teeth 52 at least one tuning slot 48,50 that extends radially inwardly from the bottom of the winding slot 36 a distance to tune the rotor to a desired torsional natural frequency (Fig.2).

Regarding claims 2, 10, 15, and 19, Kobayashi discloses that the at least one tuning slot 48,50 has a width 48 smaller than the diameter of any winding wire 55 received within the winding slot 34,36 to prevent winding wire 55 from passing into the tuning slot 48,50 (Fig.2).

Regarding claims 3, 7, 11, 16, and 20, the at least one tuning slot 48,50 is positioned at a location that minimizes impact to the electromagnetic characteristics of the rotor cross-section.

Regarding claims 4, 8, and 12, note plural of tuning slots 48,50.

Regarding claim 5, Kobayashi discloses a method for tuning the torsional natural frequency of a rotor having opposing poles and a quadrature axis, comprising the step of forming within the winding slots 36 defined by radially projecting winding teeth 52 that are positioned substantially at the quadrature axis, at Ieast one tuning slot 48,50 that extends radially inwardly from the bottom of the winding slot 36 a distance to tune the rotor to a desired torsional natural frequency.

Regarding claim 6, Kobayashi discloses that the at least one tuning slot 48,50 has a width 48 smaller than the width of any winding wire 55 received within the winding slot 36 to prevent winding wire 55 from passing into the tuning slot 48.

Regardin claim 9, Kobayashi discloses a rotor comprising: a rotor shaft 20, a cylindrically configured rotor body 26 formed as pad of the shaft 20 and having a plurality of radially projecting winding teeth 52 that define winding slots 34,36 for receiving winding wire 55 therein, the winding slots 34,36 having a bottom portion spaced radially inward, and at least one first winding slot 36 having a tuning slot 48,50 that extends radially inward from the bottom thereof a distance that tunes the rotor 26 to a desired torsional natural frequency, and at least one second winding slot 34 being devoid of a tuning slot.

Regarding claim 13, Kobayashi discloses that the rotor body 26 is formed of a plurality of rotor laminations stacked together.

Regarding claim 14, note rotor shaft 20, a cylindrically configured rotor body formed as part of the shaft 20 and having a plurality of radially projecting winding teeth 52 defining winding slots 34,36 for receiving winding 55 wire therein, the rotor body having two or more poles and a quadrature axis, the winding slots 34,36 having a bottom spaced radially inward; and at least one tuning slot 48,50 positioned at the quadrature axis and extending radially inward from the bottom of the winding slot 34,36 a distance that tunes the rotor to a desired torsional natural frequency.

Regarding 17, note plural tuning slots 48,50 positioned substantially at the quadrature axis.

Regarding claim 18, note rotor shaft 20, a cylindrically configured rotor body formed as part of the shaft 20, said rotor body having a plurality of radially projecting winding teeth 52 defining winding slots 34,36 for receiving winding wire 55 therein, said rotor body having two poles and a quadrature axis, said winding slots 34,36 having a bottom spaced radially inward; and at least one tuning slot 48,50 extending radially inward from the bottom of the coil slot 36 a distance that tunes the rotor to a desired torsional natural frequency, wherein said winding slots 34 positioned at said poles are devoid of any tuning slot.

***Response to Arguments***

4. Applicant's arguments filed 11 August 2003 have been fully considered but they are not persuasive. In response to applicant's argument that neither Debleser nor Kobayashi teaches a method for tuning the torsional natural frequency of a rotor, the examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference

between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967), *In re Otto*, 136 USPQ 458, 459 (CCPA 1963) and ex parte Masham, 2 USPQ2d 1647 (1987). Since Debleser and Kobayashi as described above satisfy the structural limitations of the claims, the claims are not patentably distinguishable.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Behrend and Horsley teach rotor structures similar to Debleser and Kobayashi. Behrend in particular teaches a "well balanced" machine (p.2, line 35).

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
20 October 2003